

## REMARKS

Claims 1-4 are pending in the present application. Reconsideration and allowance of the claims are requested on the basis of the June 3, 2003, amendment -- and on the basis of the foregoing amendments and the following remarks.

Before addressing the examiner's remarks set forth in the April 3, 2003, final official action, a brief description of the subject invention will be provided.

The present invention is intended to solve the problem that a lift or a crack is generated in an interface due to the difference in the stress between two types of nitride films, i.e., a nitride film constituting a hard mask and a nitride film constituting a spacer. The lift or crack may contaminate the wafer and the apparatus or may cause contact between the wirings when the device is driven to result in a leakage current which degrades electrical characteristics of the device. Further, this phenomenon may significantly affect the throughput of the device since it is severe in an edge of the wafer. The invention provides a method of forming wiring in a semiconductor device capable of preventing a lift or a crack generated when nitride films having different physical properties come in contact, by using a nitride turn having similar stress characteristics.

Claims 1, 3, and 5 were rejected as allegedly rendered obvious by the combination of applicants' allegedly admitted prior art in view of Harakawa (JP 07-183513) (Translation). Also, claims 2 and 4 were rejected as allegedly rendered obvious by the combination of applicants' allegedly admitted prior art and Harakawa as applied to claims 1, 3, and 5 above, and further in view of Beinglass et al. (U.S. 5,932,286).

The final official action concedes that applicants' admitted prior art does not specifically teach depositing the nitride film by low-pressure chemical vapor deposition, the hard mask and the spacer having the specific thickness, as recited in claims 1, 3, and 5. Also, the final official action concedes that the combination of Applicants' admitted prior art and

Harakawa fails to show using a single type chamber having a temperature of 600°C to 800°C and a pressure of 1 Torr to 500 Torr, as recited in claims 2 and 4.

With respect to independent claim 1, the applicants respectfully submit that the applicants' admitted prior art, Harakawa, and Beinglass, whether taken singly or combined, do not teach or suggest the claimed combination, including at least "depositing a nitride film on said metal layer by a low-pressure chemical vapor deposition method in a single type chamber to form a hard mask layer, and depositing a nitride film having similar stress characteristics with the hard mask layer by a low-pressure chemical vapor deposition method in the single type chamber and then etching to form a spacer at a sidewall of the patterned metal layer, the patterned polysilicon layer and the patterned hard mask", as recited in claim 1.

Harakawa and Beinglass do not recognize above-described problem. Also, the applicants' allegedly admitted prior art, Harakawa, and Beinglass et al. do not teach or disclose that the hard mask and the spacer are formed by using a nitride film having similar stress characteristics in order to prevent a lift or a crack generated when nitride films having different physical properties come in contact.

Harakawa does not teach or suggest patterning a metal layer using a patterned hard mask. Referring to the paragraph of [0012] of Harakawa, the following is stated: "Etching processing is given as it is shown in drawing 3, using this resist pattern as a mask. That is, using reactive ion etching (RIE) silicon nitride 106 and the tungsten silicide film 105 are processed into a gate electrode configuration, and resist is removed." Thus, Harakawa discloses using the resist pattern as a mask to form the patterned metal layer. Therefore, Harakawa does not disclose patterning a metal layer using the patterned hard mask. Also, Harakawa does not disclose patterning a polysilicon layer using the patterned hard mask.

Furthermore, Harakawa does not teach depositing a nitride film having similar stress characteristics with the hard mask layer and then etching to form a spacer at a sidewall of the patterned metal layer, the patterned polysilicon layer, and the patterned hard mask.

Beinglass does not teach patterning metal layer and polysilicon layer using a patterned hard mask, and depositing a nitride film having similar stress characteristics with the hard mask layer and then etching to form a spacer at a sidewall of the patterned metal layer, the patterned polysilicon layer, and the patterned hard mask.

Applicants respectfully assert that independent claim 1 is in condition for immediate allowance because the applied references, whether taken singly or combined, do not teach or suggest each and every feature of claim 1. Further, applicants respectfully assert that claims 2-4 are also in condition for allowance at least because of their dependencies upon independent claim 1 and for the reasons set forth above.

In view of the foregoing, it is believed that claims 1-4 are now in condition for immediate allowance.

Respectfully submitted,

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